

IN THE CLAIMS:

Please **CANCEL** claims 26-33.

1. (Previously Amended) In a Foreign Agent supporting Mobile IP, a method of sending a registration request packet on behalf of a node that supports PPP but does not support Mobile IP, comprising:

accepting a call from the node;

receiving authentication information associated with a PPP authentication protocol from the node, the authentication information enabling a PPP node to be authenticated;

obtaining a PPP node profile associated with the authentication information, the PPP node profile including registration information associated with the node that enables proxy registration to be performed by the Foreign Agent on behalf of the node, the registration information associated with the node identifying a Home Agent associated with the node, the PPP node profile further identifying a key to be shared between the Home Agent and the Foreign Agent for use in authenticating communications between the Home Agent and the Foreign Agent and indicating a registration lifetime for the node;

composing a registration request packet including the registration information associated with the node; and

sending the registration request packet to the Home Agent on behalf of the node.

2. (Original) The method as recited in claim 1, wherein the authentication information includes a user ID submitted by the node during PPP authentication.

3. (Original) The method as recited in claim 1, wherein the authentication information includes a password submitted by the node during PPP authentication.
4. (Original) The method as recited in claim 1, wherein the PPP authentication protocol is PAP or CHAP.
5. (Original) The method as recited in claim 1, wherein the registration request packet includes an extension including the authentication information.
6. (Previously Amended) The method as recited in claim 1, wherein obtaining a PPP node profile comprises:
 - composing a request packet for the node, the request packet including the authentication information;
 - sending the request packet to a server, the server being adapted for performing authentication and for storing a profile for one or more nodes supporting PPP, the server being located outside the home network, wherein the server is in a network in which the Foreign Agent is located; and
 - receiving a reply packet from the server, the reply packet including at least a portion of a profile for the node.
7. (Original) The method as recited in claim 6, wherein the server is a TACACS+ or a RADIUS server.
8. (Original) The method as recited in claim 6, wherein the server is coupled to the Foreign Agent.

9. (Original) The method as recited in claim 6, wherein the server is coupled to a Home Agent associated with the node.

10. (Cancelled)

11. (Previously Amended) The method as recited in claim 1, the PPP node profile associated with the node further identifying a service selection, the service selection indicating that PPP service is normal PPP service, mobile IP service, or proxy mobile IP service.

12. (Original) The method as recited in claim 11, wherein composing the registration request packet is performed in response to obtaining the PPP node profile in which the service selection indicates that PPP service is proxy mobile IP service.

13. (Cancelled)

14. (Previously Amended) The method as recited in claim 1, the PPP node profile associated with the node further identifying a Home Address for the node.

15. (Original) The method as recited in claim 14, further comprising:

completing IPCP to establish and configure IP between the node and the Foreign Agent using the Home Address.

16. (Original) The method as recited in claim 1, further comprising:

receiving a registration reply from the Home Agent, the registration reply identifying a Home Address for the node.

17. (Original) The method as recited in claim 16, further comprising:

completing IPCP to establish and configure IP between the node and the Foreign Agent using the Home Address.

18. (Original) The method as recited in claim 1, further comprising:

receiving a registration reply from the Home Agent, the registration reply including a proxy Mobile Node registration sequence number extension indicating a sequence number for a registration being performed on behalf of the node by the Foreign Agent, the sequence number indicating an order of the registration within a sequence of one or more registrations performed by one or more Foreign Agents on behalf of the node.

19. (Original) The method as recited in claim 18, further comprising:

updating a registration table to associate the sequence number with the node.

20. (Original) The method as recited in claim 1, further comprising:

receiving a registration reply from the Home Agent, the registration reply including a proxy Mobile Node extension indicating whether a registration being performed on behalf of the node is a re-registration by the Foreign Agent or an initial registration by the Foreign Agent.

21. (Original) The method as recited in claim 20, further comprising:

updating a registration table to indicate whether the registration being performed on behalf of the node is a re-registration by the Foreign Agent or an initial registration by the Foreign Agent.

22. (Original) The method as recited in claim 1, further comprising:

providing a sequence number in a proxy Mobile Node extension to the registration request, the sequence number indicating a registration being performed by the Foreign Agent on behalf of the node among a sequence of one or more registrations performed on behalf of the node.

23. (Original) The method as recited in claim 22, further comprising:

receiving a registration reply from the Home Agent, the registration reply including a proxy Mobile Node registration sequence number extension indicating an updated sequence number for the registration being performed by the Foreign Agent on behalf of the node.

24. (Original) The method as recited in claim 22, wherein the sequence number is zero when the registration is an initial registration being performed on behalf of the node.

25. (Original) The method as recited in claim 22, further comprising:

obtaining the sequence number from a registration table, the registration table identifying the node, a Home Agent associated with the node, and the sequence number.

26. (Cancelled)

27. (Cancelled)

28. (Cancelled)

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)

32. (Cancelled)

33. (Cancelled)

34. (Previously Amended) A computer-readable medium adapted for sending a registration request packet on behalf of a node that supports PPP but does not support Mobile IP, comprising:

instructions for accepting a call from the node;

instructions for receiving authentication information associated with a PPP authentication protocol from the node, the authentication information enabling a PPP node to be authenticated;

instructions for obtaining a PPP node profile associated with the authentication information, the PPP node profile including registration information associated with the node that enables proxy registration to be performed by the Foreign Agent on behalf of the node, the registration information associated with the node identifying a Home Agent associated with the node, the PPP node profile further identifying a key to be shared between the Home Agent and

the Foreign Agent for use in authenticating communications between the Home Agent and the Foreign Agent and indicating a registration lifetime for the node;

instructions for composing a registration request packet including the registration information associated with the node; and

instructions for sending the registration request packet to the Home Agent on behalf of the node.

35. (Previously Amended) An apparatus for sending a registration request packet on behalf of a node that supports PPP but does not support Mobile IP, comprising:

a processor; and

a memory, at least one of the processor and the memory being adapted for:

accepting a call from the node;

receiving authentication information associated with a PPP authentication protocol from the node, the authentication information enabling a PPP node to be authenticated;

obtaining a PPP node profile associated with the authentication information, the PPP node profile including registration information associated with the node that enables proxy registration to be performed by the Foreign Agent on behalf of the node, the registration information associated with the node identifying a Home Agent associated with the node, the PPP node profile further identifying a key to be shared between the Home Agent and the Foreign Agent for use in authenticating communications between the Home Agent and the Foreign Agent and indicating a registration lifetime for the node;

composing a registration request packet including the registration information associated with the node; and

sending the registration request packet to the Home Agent on behalf of the node.

36. (Previously Amended) A Foreign Agent supporting Mobile IP, the Foreign Agent being adapted for sending a registration request packet on behalf of a node that supports PPP but does not support Mobile IP, comprising:

means for accepting a call from the node;

means for receiving authentication information associated with a PPP authentication protocol from the node, the authentication information enabling a PPP node to be authenticated;

means for obtaining a PPP node profile associated with the authentication information, the PPP node profile including registration information associated with the node that enables proxy registration to be performed by the Foreign Agent on behalf of the node, the registration information associated with the node identifying a Home Agent associated with the node, the PPP node profile further identifying a key to be shared between the Home Agent and the Foreign Agent for use in authenticating communications between the Home Agent and the Foreign Agent and indicating a registration lifetime for the node;

means for composing a registration request packet including the registration information associated with the node; and

means for sending the registration request packet to the Home Agent on behalf of the node.

Please **ADD** new claims as follows:

37. (Newly presented) The apparatus as recited in claim 35, wherein the authentication information includes a user ID submitted by the node during PPP authentication.

38. (Newly presented) The apparatus as recited in claim 35, wherein the authentication information includes a password submitted by the node during PPP authentication.

39. (Newly presented) The apparatus as recited in claim 35, wherein the PPP authentication protocol is PAP or CHAP.

40. (Newly presented) The apparatus as recited in claim 35, wherein the registration request packet includes an extension including the authentication information.

41. (Newly presented) The apparatus as recited in claim 35, wherein obtaining a PPP node profile comprises:

composing a request packet for the node, the request packet including the authentication information;

sending the request packet to a server, the server being adapted for performing authentication and for storing a profile for one or more nodes supporting PPP, the server being located outside the home network, wherein the server is in a network in which the apparatus is located; and

receiving a reply packet from the server, the reply packet including at least a portion of a profile for the node.

42. (Newly presented) The apparatus as recited in claim 41, wherein the server is a TACACS+ or a RADIUS server.

43. (Newly presented) The apparatus as recited in claim 41, wherein the apparatus is a Foreign Agent and the server is coupled to the Foreign Agent.

44. (Newly presented) The apparatus as recited in claim 41, wherein the server is coupled to a Home Agent associated with the node.

45. (Newly presented) The apparatus as recited in claim 35, the PPP node profile associated with the node further identifying a service selection, the service selection indicating that PPP service is normal PPP service, mobile IP service, or proxy mobile IP service.

46. (Newly presented) The apparatus as recited in claim 45, wherein composing the registration request packet is performed in response to obtaining the PPP node profile in which the service selection indicates that PPP service is proxy mobile IP service.

47. (Newly presented) The apparatus as recited in claim 35, the PPP node profile associated with the node further identifying a Home Address for the node.

48. (Newly presented) The apparatus as recited in claim 47, further comprising:

completing IPCP to establish and configure IP between the node and the apparatus using the Home Address.

49. (Newly presented) The apparatus as recited in claim 35, further comprising:

receiving a registration reply from the Home Agent, the registration reply identifying a Home Address for the node.

50. (Newly presented) The apparatus as recited in claim 49, further comprising:

completing IPCP to establish and configure IP between the node and the apparatus using the Home Address.

51. (Newly presented) The apparatus as recited in claim 35, further comprising:

receiving a registration reply from the Home Agent, the registration reply including a proxy Mobile Node registration sequence number extension indicating a sequence number for a registration being performed on behalf of the node by the apparatus, the sequence number indicating an order of the registration within a sequence of one or more registrations performed by one or more apparatuses on behalf of the node.

52. (Newly presented) The apparatus as recited in claim 51, further comprising:

updating a registration table to associate the sequence number with the node.

53. (Newly presented) The apparatus as recited in claim 35, further comprising:

receiving a registration reply from the Home Agent, the registration reply including a proxy Mobile Node extension indicating whether a registration being performed on behalf of the node is a re-registration by the apparatus or an initial registration by the apparatus.

54. (Newly presented) The apparatus as recited in claim 53, further comprising:

updating a registration table to indicate whether the registration being performed on behalf of the node is a re-registration by the apparatus or an initial registration by the apparatus.

55. (Newly presented) The apparatus as recited in claim 35, further comprising:

providing a sequence number in a proxy Mobile Node extension to the registration request, the sequence number indicating a registration being performed by the apparatus on behalf of the node among a sequence of one or more registrations performed on behalf of the node.

56. (Newly presented) The apparatus as recited in claim 55, further comprising:

receiving a registration reply from the Home Agent, the registration reply including a proxy Mobile Node registration sequence number extension indicating an updated sequence number for the registration being performed by the apparatus on behalf of the node.

57. (Newly presented) The apparatus as recited in claim 55, wherein the sequence number is zero when the registration is an initial registration being performed on behalf of the node.

58. (Newly presented) The apparatus as recited in claim 55, further comprising:

obtaining the sequence number from a registration table, the registration table identifying the node, a Home Agent associated with the node, and the sequence number.